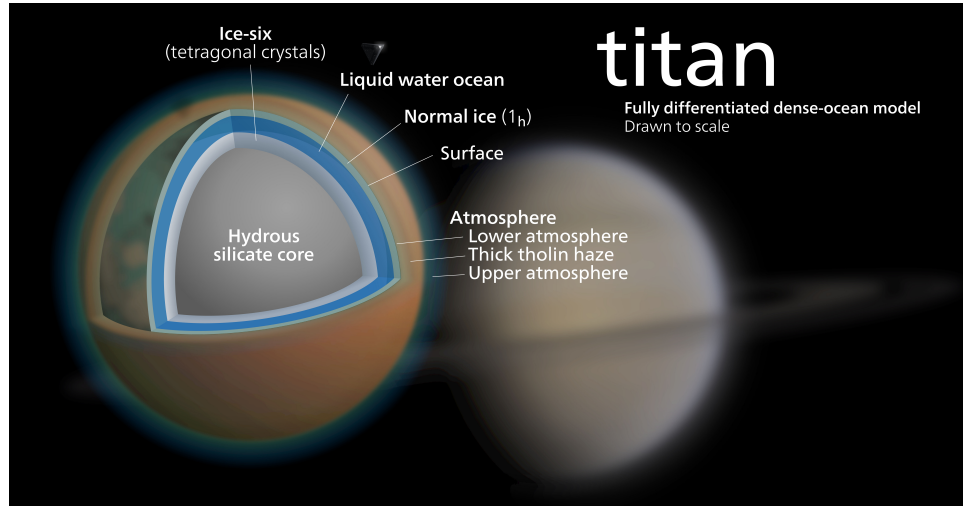


## 12.2: Titan and Triton

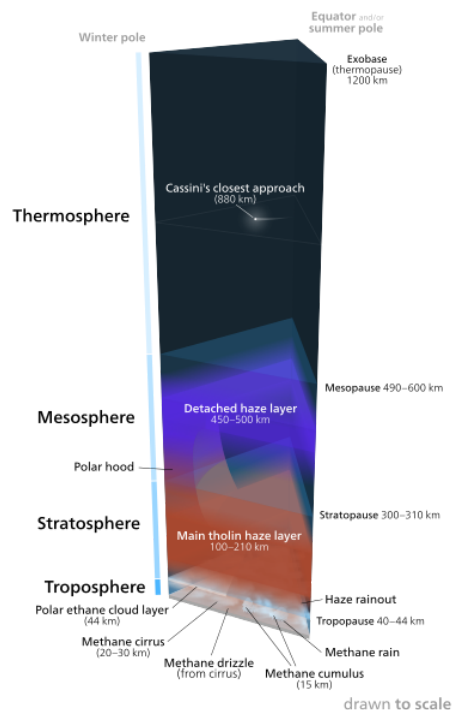
### 12.2.1 Titan



Titan and its interior

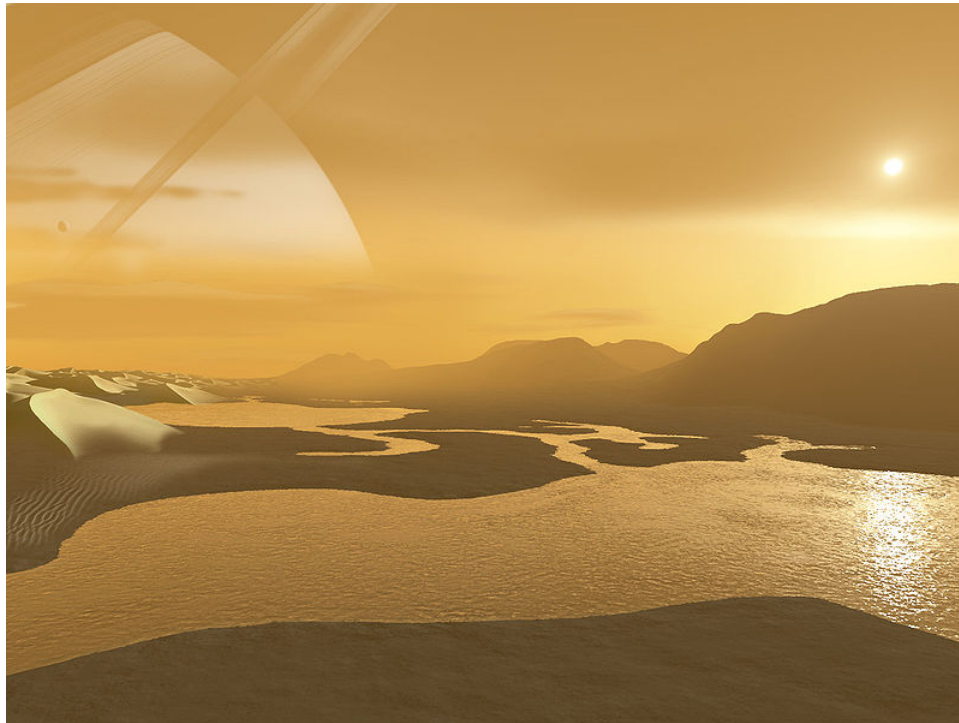
[https://commons.wikimedia.org/wiki/File:Titan\\_poster.svg](https://commons.wikimedia.org/wiki/File:Titan_poster.svg)

Titan is Saturn's largest moon. Titan is unique in that it is the only moon with a thick atmosphere. In fact, Titan's atmosphere is thicker and denser than Earth's and consists mostly nitrogen and argon. Titan's cloudy atmosphere makes it impossible to see the surface. Infrared images Titan have shown details including a possible icy volcano. Titan has few craters, consistent with active surface. Active on Titan consists of cryovolcanoes of flowing ices instead of lava. Complex chemical interactions occur in Titan's atmosphere, forming hydrocarbons and other organic molecules.



The layers of Titan's atmosphere.

[https://commons.wikimedia.org/wiki/File:Titan\\_atmosphere.svg](https://commons.wikimedia.org/wiki/File:Titan_atmosphere.svg)



The surface of Titan has lakes of liquid hydrocarbons and "rocks" made of ice.

<https://commons.wikimedia.org/wiki/File:Viewfromtitan.jpg>;

The Huygens probe passed through the atmosphere and provided us the first look at Titan's surface in early 2005. Huygens found lakes of liquid methane and "rocks" made of ice. Analysis of Titan's atmosphere found it had several layers found at the following elevations:

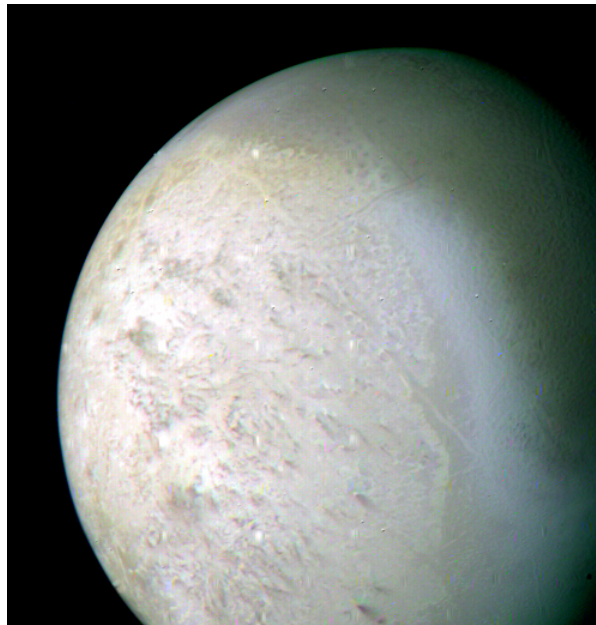
- Ultraviolet-absorbing haze: 400 km
- Ultraviolet/optical haze layer: 300 km
- Main haze layer 100-200 km, includes aerosol haze
- Methane clouds and rain at <20 km





### 12.2.2 Triton

Triton is Neptune's largest moon. Unlike other large moons, it orbits in a retrograde orbit. Its surface has few craters, indicating an active surface. Voyager 2 found liquid nitrogen geysers observed on Triton, which probably contribute to its resurfacing. Because of its retrograde orbit, planet scientist believe Triton is likely captured Kuiper belt object. Models used to calculate its orbit indicate that Triton may be a doomed moon that will one day crash into the icy deeps of Neptune.



Triton image from Voyage 2.

<https://commons.wikimedia.org/wiki/File:608829504.jpg>



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